

## **Title: Vroom! Vroom! Start Your Engines!!!**

### **Brief Overview:**

Students will perform a variety of tasks to collect and analyze data. They will construct a bar graph and use a Venn diagram. As a conclusion, the students will demonstrate their knowledge by expressing their findings in written form.

### **Link to Standards:**

- **Problem Solving** Students will demonstrate their ability to solve problems through everyday mathematical situations.
- **Communication** Students will demonstrate communication skills mathematically through reading, writing, and discussing math with language and symbols of the discipline.
- **Reasoning** Students will use known facts, prior knowledge, and personal experiences to demonstrate mathematical reasoning.
- **Connections** Students will be able to demonstrate connections between mathematics and literature.
- **Number Relationships** Students will be able to apply whole number computation and whole number operations, given a situation.
- **Statistics** Students will demonstrate their ability to collect, organize, and display data and will interpret information obtained from displays.

### **Grade/Level:**

Grade 3

### **Duration/Length:**

This lesson will take 5 class periods.

### **Prerequisite Knowledge:**

Students should have working knowledge of the following skills:

- classifying
- using equations
- constructing bar graphs
- using a Venn diagram
- classifying, organizing, and analyzing data
- working in cooperative groups
- compare and contrast
- writing to persuade

## **Objectives:**

Students will be able to:

- work cooperatively in groups.
- collect, organize, and display data using bar graphs, pictographs, and Venn diagrams.
- classify cars.
- communicate data through written response.
- evaluate a situation and give appropriate support for their answers.

## **Materials/Resources/Printed Materials:**

### **Day 1:**

Students:

- Chart paper
- Markers
- Student worksheet #1

Teacher:

- Chart paper
- Markers

### **Day 2:**

Students:

- Worksheet #2

### **Day 3:**

Students:

- Chart paper
- Markers

### **Day 4:**

Students:

- Worksheet #1
- Chart paper
- Markers

Teacher:

- Chart paper
- Masking tape
- Markers

### **Day 5:**

Students:

- Pencils
- Paper

## **Development/Procedures:**

### **Day 1:**

- Students will discuss different types of cars. Ask the students what the cars listed on the chalkboard have in common.
- Ask students to think of cars they see or have seen in their neighborhood. Create a web on chart paper listing the students responses.
- Divide students into small groups. Ask them to categorize the cars from the web using chart paper.
- Ask each group to display and share the categories they developed.
- Ask students to write a journal entry summarizing the day's math experience.
- Ask students to use Worksheet #1 to record the number of cars they see daily for three days. Tell students that their data sheets are due on Day 4.

### **Day 2:**

- Review the different categories that cars may be classified under.
- Explain to the students that they will be going to the parking lot to collect data using Worksheet #2.
- Divide the class into groups of four. Remind them to each pick a task to complete this activity (roles include recorder, counter, etc.) Assign each group a section or row of the parking lot to collect data.
- Upon returning to the classroom collect the data sheets from each group. Explain to the students that tomorrow they will interpret the data and create a bar graph.
- Ask each student to write a journal entry explaining which type of car they would rather be and why.
- Remind students to continue completing Worksheet #1 for homework.

### **Day 3:**

- Ask students to return to yesterday's groups. Return data sheets to each group.
- Explain to the students parking lot results will be tallied for the whole class.
- Record each group's results on chart paper. Explain to them that they will use this information to make a bar graph.
- Ask each student to create a bar graph using one category from the data sheet (i.e., type, design, or color).
- Ask each student to write a journal entry using a Venn diagram to compare any two types of cars.

- Remind the students that their data sheets are due tomorrow (they need to collect one more day's worth of data).

#### **Day 4:**

- Students will return with Worksheet #1.
- Students will have a discussion comparing which cars they saw most and least.
- Ask students to create a pictograph depicting the total number of each type of car they counted.
- Ask each student to write a journal entry describing their experiences while collecting the car data.

#### **Day 5:**

- Explain to the class that each student should interview five students from another class during recess. They should ask the following question: If you could purchase a car today, what color would it be?
- When the students return from recess, they should return to their groups to tally their data.
- Create a bar graph which depicts all the groups information and have students compile all information to decide the most popular color. Display the bar graph in the hall.

### **Performance Assessment:**

- Read the following vignette to the students:

Ms. Hill, the new sixth grade teacher, has mentioned to the class that she is buying a new car. Presently she is undecided about which car to buy. She really wants some input from her students. She has asked each student to write a commercial advertising the car they feel would be the best selection. They are to include two facts about the car.

- Develop a rubric with the students for evaluating their commercial. (See Teacher Resource #1 for an example of a rubric.)
- Evaluation: The teacher will read the students' responses describing the car of their choice for her. Based on the rubric, the teacher will grade accordingly.

### **Extension/Follow Up:**

Math:

- Develop a survey, collect, and display data on students' favorite car and graphically display results.
- Determine the probability of selecting a specific car from the school parking lot.
- Students choose four cars at random in school parking lot and find the sum of numbers on the license plates. They can also compare sums and determine the largest and smallest.

Writing:

- Write a letter to a car dealer explaining why they like one of their cars the most.
- Write a story about the day everyone was driving their cars backwards.

Art:

- Design and illustrate a billboard for your favorite car to entice others to buy it.
- Design a car of the future.

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CARS WE SEE

Vroom! Vroom! Start Your Engines!!!  
Student Resource Sheet #1

Types of Cars	Tally
Station Wagon	
Hatchback	
Convertible	
Sedan	
Limousine	
Taxi	
	Total

## Parking Lot Car Survey

# Vroom! Vroom! Start Your Engines!!

## Student Resource Sheet #2

[illegible]

## Vroom! Vroom! Teacher Resource #1

### Scoring Rubric

Score	Criteria
4	- includes two facts, expresses personal reasons for selection, persuasive language and correct language usage.
3	- includes one fact, expresses personal reasons for selection and persuasive language.
2	- includes one fact and expresses personal reasons for selection.
1	- expresses personal reason for selection.